
FOODS AND DRUGS

LABORATORY

OF THE

DEPARTMENT OF TRADE AND COMMERCE

OTTAWA, CANADA

BULLETIN No. 422

BRAN AND SHORTS

NOTES AND COMMENTS.

Under this heading, as occasion arises, the Bulletins issued by this Department will contain, as an appendix, such comment as may seem necessary or advisable upon matters relating to the work of the Department in connection with the administration of the Adulteration Act, the Fertilizers Act, the Feeding Stuffs Act or the Proprietary Medicines Act.

It frequently happens that correspondents ask information regarding the above Acts, of such a nature that the matter in question possesses general interest, and comment upon it would prove acceptable and useful to others than the immediate questioner. In such cases the reply may find a place in these columns. For convenience of reference these notes will be numbered in series.

A. MCGILL,

Chief Analyst.

NOTE 14.—Determination of Vital Weed Seeds as required by Section 17 of Order in Council, Dec. 3rd, 1917, is to be made as follows:—

From a fair sample of at least one pound, there is to be weighed out, after thoroughly mixing the whole, two portions of one ounce each.

In each of these portions careful inspection is to be made under a lens of low power, and the unground seeds are to be separated, identified, and counted.

The sum of those seeds which fall into the class of noxious weed seeds is to be multiplied by 8; and the product is the number of such seeds per pound of the sample.

OTTAWA, 18 January, 1919.

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BRAN AND SHORTS

OTTAWA, January 20, 1919.

F. C. T. O'HARA, Esq.,

Deputy Minister of Trade and Commerce.

SIR,—I beg to hand you a report upon 165 samples of Feeds purchased as Bran and Shorts by our inspectors during the months of July and August, 1918.

This particular inspection was made consequent upon complaints received from various sources as to the unsatisfactory character of the classes of Feeds named. Thus, under date 18th June, the Chairman of the Canada Food Board writes:—

"We have for months past been receiving numerous complaints with reference to the adulteration of bran and shorts, and have had samples of the same that certainly justify the complaints. The bran is adulterated by mixing with oat hulls and all sorts of rubbish. Shorts, in many cases, is simply bran, reground so as to make it fine."

The Acting Director of the Central Experimental Farm writes as follows, under date 19th July:—

"There seems to be a great deal of screening adulteration in the case of such feeds as bran and shorts, as sold on the Canadian market. Thus, in buying bran recently from different firms for the Experimental Farm Branch, some of the samples have been found to contain a very high percentage of oat hulls."

In so far as nutrient value is concerned, existing standards require as follows:—

Bran:

Protein.....	14 p. c. as a minimum.
Fat.....	3 " " "
Fibre.....	10 " " maximum.

Shorts (Middlings):

Protein.....	15 p. c. as a minimum.
Fat.....	4 " " "
Fibre.....	8 " " maximum.

Four samples of the collection now reported fall below these requirements. These are:—

No. 84869—sold as Bran by M. Brisette, St-Felix de Valois—manufactured by Western Canada Flour Mills Co., Ltd., Ont.

Protein.....	14.3 p. c.
Fat.....	1.02 " —2 p. c. low.
Fibre.....	9.45 "

No. 79830—sold as Bran by Dauphin Milling Co., Dauphin—manufactured by vendors.

Protein.....	10.71 p. c.—2½ p. c. low.
Fat.....	4.30 "
Fibre.....	11.5 "

Oat hulls present in large amount.

No. 79832—sold as Bran by Mercantile Milling Co., Ethelbert—manufactured by vendors.

Protein.....	11.81 p. c.—2 p. c. low.
Fat.....	3.30 "
Fibre.....	7.00 "

No. 79833—sold as Shorts by John Kennedy, Sifton—manufactured by vendor.

Protein.....	11.16 p. c.—2½ p. c. low.
Fat.....	3.04 " —2 " "
Fibre.....	1.70 "

None of the above samples contained vital weed seeds of noxious character.

This class of weed seeds is prohibited in Feeds in excess of 25 seeds per pound (Order in Council of 3rd December, 1917—published as G. 1292).

The following samples showed noxious weed seeds above the limit named:—

No.	3 per oz.	48 per lb.
84876	8	128
79482	8	128
80727	5	80
80763	125	2,000
84321	4	64
84337	18	288
81868	8	128
86107	29	464
86114	7	112
86126	5	80
88608	16	256
84884	13	208
80710	8	128

It has been usual to determine the number of objectionable seeds by actual count of the number present in one ounce of the sample, and multiplying this by the factor 16. Before taking one ounce for count under a lens, we have thoroughly mixed the whole sample, and have assumed that this precaution would fairly distribute the weed seeds present. Owing, however, to the extreme minuteness of some of these seeds (mustards in particular) doubt has been cast upon the reliability of the process, especially where the number of seeds is small. In order to ascertain the trustworthiness of the above described method of working, I caused the following investigation to be made:—

The whole of the sample was thoroughly mixed, and portions taken from all parts of the mixture until one pound was weighed out. This was again thoroughly mixed, and four separate portions of one ounce each were taken, each portion from various parts of the whole. Each of these one ounce portions was carefully screened and counted, with the following results:—

SAMPLE 79482.

	Chenopodium album.	Lamb's quarters.	Polygonum, persicaria.	Lady's thumb.	Axys amaranthoides.	Russian Fig-weed.	Portul.	Chickweed.	Black Bind-weed.	Orchard grass.	Stitchweed.	Field Penny-cress.	Bladder Campion.
A.....	12	2	2	3	3	1	0	0	0	0	1	2	2
B.....	12	2	2	3	3	0	0	0	0	0	1	2	0
C.....	12	2	2	3	3	0	0	0	0	0	1	2	1
D.....	12	2	2	3	3	0	0	0	0	0	1	2	0
Total.....	117	21	11	19	8	2	8	8	8	8	19	2	2
Average per oz.....	29.3	5.3	2.8	4.8	2	0.5	2	2	2	2	4.8	0.5	0.5

The last three kinds of seeds named are included in the class of noxious weeds.

Noxious weed seeds per pound, calculated upon the several findings for single ounces, and for the average of four ounces, are as follows:—

Noxious weed seeds per pound:

A.....	112
B.....	64
C.....	112
D.....	144
Average.....	110

Noxious weed seeds are in excess of the limit of 25 seeds per pound, no matter which datum is used as a basis of calculation. Nevertheless, the variation is so considerable that I think it will be well, for the future, to base the finding upon an actual count of more than one ounce.

The work above described was repeated upon eight separate ounces taken from sample 69608—with results as below:—

	Lamb's Quarters. Chenopodium album.	Tumbling mustard. Sisymbrium altissimum.	Stinkweed Thlaspi arvense.
A.....	32	0	1
B.....	35	11	0
C.....	24	13	0
D.....	34	20	1
E.....	42	9	0
F.....	38	4	0
G.....	33	4	0
H.....	30	6	1
Total.....	277	67	3
Average per ounce.....	34.6	8.3	0.4

The last two species are included among noxious weeds, and the findings per pound, calculated from separate counts upon portions of one ounce, are as below:—

	Noxious weed seeds per pound.
A.....	16
B.....	176
C.....	208
D.....	336
E.....	144
F.....	64
G.....	64
H.....	112
From average.....	139

Noxious weed seeds are in excess of the legal limit, except upon the count of the first ounce. This finding appears to corroborate my decision that at least two separate counts upon portions of one ounce should be made.

In our next edition of G. 1292 I shall introduce a note in conformity with the results of this investigation.

Although the count has been made, in most of the present cases, upon only a single ounce, the findings in the following samples are so greatly in excess of the legal limit of 25 seeds per pound as to warrant the conclusion that they violate the requirements of the Order in Council of 3rd December, 1917 (Section 17), and must be judged to be adulterated under the Act.

No. 79482 (128 seeds per lb.), sold as Bran by Philip Labbe & Co., of Port Arthur, Ont., and manufactured by Ogilvie Co., Fort William, Ont.

No. 80762 (2,000 seeds per lb.), sold as Bran by R. Denne, of Peterborough, Ont., and manufactured by Quaker Oats Co., Peterborough, Ont.

No. 84337 (288 seeds per lb.), sold as Bran by Alexander Brown M. & E. Co., Ltd., of Toronto, Ont., and manufactured by vendors.

No. 81868 (128 seeds per lb.), sold as Bran by W. H. Shaw, North Battleford, and manufactured by Western Elevator Co., North Battleford.

No. 86107 (464 seeds per lb.), sold as Bran by T. E. Mahaffy, of Mervin, manufactured by Quaker Oats Co., Saskatoon.

No. 68608 (256 seeds per lb.), sold as Bran by Brackman Ker M. Co., Nelson, B.C., manufactured by the Ogilvie Flour M. Co., Medicine Hat.

No. 84884 (208 seeds per lb.), sold as Bran by F. Coutu, Lamarche, of Berthier-ville, manufactured by Lake of the Woods F. M. Co., Keewatin.

I am given to understand that large accumulations of weed seeds occur at the elevators and at the mills, and it cannot be denied that in most cases these seeds possess considerable food value. It is, however, to be noted that all of the varieties of mustards, as well as certain other seeds, are disliked by hogs and other domestic animals, and certain of them are poisonous. The matter of utilising these seeds as ingredients of mixed feeds is therefore open to question, and unless it has been ascertained that objectionable varieties of seeds are absent they should certainly not be employed as feed material.

In any case, the addition of such seeds to bran or shorts is quite inadmissible. Bran and shorts are distinctly defined by the regulations above quoted in such a way as to exclude the intentional addition of weed seeds.

On the whole, the results given herewith do not bear out the contention that widespread adulteration of the classes of feed named exists. It is to be borne in mind that legal requirements for bran and shorts do not measure up to the values of the best specimens of these respective milling products. Many samples of bran are found to contain more than 14 per cent of protein. The addition of non-protein matters to such bran, so long as it does not bring up the fibre content to more than 10 per cent, may be regarded as adulteration from one point of view, inasmuch as bran is assumed to have nothing added to it other than bran itself, but it might be impossible, upon analytical results, to prove such addition. So long as the buyer obtains 14 per cent of proteids, 3 per cent of fat and not more than 10 per cent of fibre, he gets the actual feed value of legal bran. It would be possible to mix together two samples of bran, one having a higher than average value, the other a lower value, and secure a mixture legally vendable as bran, and actually consisting of nothing other than bran. Where a manufacturer knows that his product has a value much above the established legal minimum, it would seem to be to his advantage to sell such product as a registered feed, with a guarantee of value. This is, however, a matter to be considered by the producer himself.

I beg to recommend publication of this report as Bulletin No. 422.

I have the honour to be, Sir,

Your obedient servant,

A. MCGILL,

Chief Analyst.